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XII.—*Account of the Ascent of the Kárún and Dizful Rivers and the Ab-í-Gargar Canal, to Shuster.* By Lieutenant W. B. SELBY, I. N., Commanding the H. C. Steam-vessel 'Assyria,' belonging to the Euphrates Expedition, in the Months of March and April, 1842.

THE perfect navigation of the Kárún (ancient Eulœus) above Ahwáz (ancient Aginis), by steam-vessels, having always been considered, if not impossible, yet very doubtful, more particularly since the ascent as far only as Ahwáz, by the 'Euphrates' steamer, commanded by Major Estcourt, and a knowledge of the many and various benefits which a successful attempt to accomplish the ascent must ultimately confer on our mercantile labours and political relations, determined me, should an opportunity offer while yet in temporary command of a portion of the Euphrates expedition, to endeavour to ascend this river to its source, and, if possible, place beyond a doubt its practicability for all purposes, whether for the transport of troops or merchandize, or, which is even yet more essential, for the establishment of a moral and political influence in those regions, and in that part of Persia where, even now, England—its power, its wealth, and its greatness—are but so little known.

At the time that the opportunity for attempting the ascent of this important river presented itself, and for which for nearly a year I had been patiently waiting, the Mu'tamidu-d-daulah (confidential minister), the second functionary at the Persian court, and a man of great genius and power, was in the immediate vicinity of the southern part of it, engaged in suppressing the power of Sheik Thammer, the head of the large and powerful Chaab tribe, who by a more temperate government than is usually exercised by the rulers of that province, and a real desire to benefit his country, had succeeded in rendering it comparatively prosperous, and was perhaps approaching a state too independent for the wishes of the Persian court.

This, joined to his having afforded shelter to Mohammed Takí Khán, a Bachtiyári chieftain, once of great power and influence, who had incurred the displeasure of the Persian court, formed the ostensible reason for visiting, and, consequent on such a visit, converting the quiet and fruitful plains of Rám Hormuz into barren deserts and burning villages, smouldering in the flames kindled by their ruthless invaders.

To understand why I have made mention of this high official, it will be well here to mention that he had hitherto invariably been opposed to our interests, and unequivocally used his

authority and influence against anything tending to an opening of the navigation of a river leading through so important a province of his master's dominions; and so strongly had this feeling been shown, that Captain Hennell, our resident and political agent at Bushire (Bú shehr), had, on a supposition that the ascent of this important river might be attempted by some one of the officers attached to the Euphrates expedition, written to the Bombay government, suggesting that an order emanating from them should be issued to prevent even the attempt. It may, therefore, well be imagined with what anxiety I commenced my undertaking, feeling primarily and most strongly that I might perhaps be acting contrary to the orders or wishes of the Bombay government, yet knowing, at the same time, that if I succeeded, very many important benefits must be secured to our interests, both in a political and commercial point of view; and secondly, that I would certainly have to combat the jealousy, if not the commands of the most powerful functionary in Persia, the country into which I was proceeding; and that, even if I surmounted these obstacles, I would still have to overcome another, and no inconsiderable one, in the "Bund of Ahwáz," which had already stopped the 'Euphrates' steamer in the proposed ascent of this river, and had always been supposed to bar the passage of vessels of any size; and had thus, until now, shut out the most important and fertile province of Persia, though traversed by so noble a stream, from the advantages of steam-navigation.

Deeply impressed with the necessity of avoiding all cause of discussion between the Persian court and our government, and aware of the importance of conciliating the high functionary just alluded to, I lent my best energies to the task, and was delighted to find by what subsequently happened, that I had completely succeeded in soothing that jealousy which had so long and strongly existed. Aware, then, of the difficulties I had volunteered to encounter, and feeling that a great degree of caution was necessary, I left Basrah in the latter part of February, 1842, to commence my undertaking.

I may here, perhaps, be allowed to express a hope that all obstacles of a political nature having been removed, and those of an artificial one successfully surmounted, and the free and perfect navigation of the river proved beyond a doubt to be practicable, the results may be such as will confer important benefits on our commercial enterprises.

The 'Euphrates' steam-vessel, while belonging to the expedition then commanded by Colonel Chesney, and under the immediate command of Major Estcourt, having ascended the

Kárún as far as Ahwáz in 1836, and a memoir and survey compiled by him having already been completed, together with one by myself, finished in May, 1841 (the time of my first ascent), also only as far as Ahwáz; and which I should imagine has long since been forwarded to the Honourable the Court of Directors, it will be unnecessary for me to recapitulate what he has already described, or comment upon subjects which he has doubtless ably explained. I shall, therefore, content myself with a general sketch of the river from Ahwáz to its junction at Mohammerah with the Shaṭ-al-'Arab, or river of Baṣrah, and a more detailed account of it, as regards its course, its capabilities, the facilities for steam-navigation, and the more interesting parts of it as regards the country through which it passes from Ahwáz to its source, including the river of Dizful and the Āb-i-Gargar, or artificial canal, which is cut from the city of Shuster (on the Kárún, and close to the mountains), and after a course of about 40 miles, rejoins the river at Bund-i-Kír (Pitch-bar).

The Kárún communicated in two ways with the sea, by a direct and indirect channel.

The direct, the natural mouth and the one by which it formerly emptied itself into the sea, is by the Khór Bámushír, the next eastern of the mouths of the Euphrates to the Shaṭ-al-'Arab (or Baṣrah river), and from which it is distant about 3 miles.

As a great doubt had existed regarding the practicability of this channel for the purposes of commercial navigation, a doubt which the Turkish authorities had always fostered, for reasons I shall presently mention, I determined to ascertain its real capabilities, and steamed down from Mohammerah to the sea and back, finding a channel of not less than 9 feet at low water. The reason why the opinion of its impracticability has always been fostered by the Turkish authorities will be evident, when it is borne in mind that the Khór Bámushír is strictly in the Persian dominions, being the natural outlet of the Kárún, one of its rivers; and consequently should vessels, in their intercourse with Mohammerah from India, Arabia, or other parts, use that channel, they would escape a heavy impost now laid on all vessels entering the Shaṭ-al-'Arab; and much likewise of the trade now carried on with Baṣrah would be absorbed by Mohammerah, which already, notwithstanding the disadvantages it has laboured under, is fast eclipsing the other place.

The indirect channel is by the Haffār (or canal), an artificial cut, through which the Kárún now discharges the greater part of its waters into the Shaṭ-al-'Arab, and thence into the sea.

Notwithstanding that Herodotus, in his able description of the Eulœus, now the Kárún, mentions and dwells upon this very work and triumph of art, some are still to be found who urge that it is a natural rather than an artificial cut, and use, as a principal argument, its magnitude. When, however, it is recollected that the Nahrawán, a canal from 120 to 130 yards broad, extended almost in a straight line from the river Zab to the sea, a distance of about 450 miles, and which still, though ages have passed, stands in solemn grandeur, filling the beholder with wonder, almost allied to awe, as he gazes on the remains of what once was so glorious a country—that immense canals, intersecting the Plain of Babylon, once connected the waters of the Euphrates with the Tigris—that the Ab-i-Gargar, a canal of nearly 50 miles in length, and in which there is now 12 feet water and perfectly navigable, and which, as being one of the means by which steam communication may be extended, I particularly directed my attention to, and shall consequently presently describe—when it is recollected that these were the works of the inhabitants of these then magnificent countries, this supposition will fall to the ground, and the form and name of this admirable work attest its origin.

The reason for cutting it is not so obvious, unless indeed to ensure water-carriage from Khúzistán, or Susiana, in Persia, to Basrah, Baghdád, and Southern Turkey, without going by sea from one river's mouth to the other, which, though it would now appear a work of immense magnitude, was, to a people who had all the resources of a vast and thickly populated country at command, but of secondary consideration.

The Haffár is about three-quarters of a mile in length, from 200 to 400 yards broad, and has a depth varying from 30 to 42 feet water.

On either side of the Haffár, half-way between the Shat-al-'Arab and the Kárún, stands the present modern town of Mohammerah, a possession of the Ch'ab Sheikh's, and governed by two members of his family.

Nothing can more forcibly show how little it avails a country to enjoy the greatest bounties of nature unless it be judiciously governed, than this very town, standing on the boundary between Persia and the Páshálik of Baghdád: to both powers it has, for some time past, been a bone of contention, and has by both been at times invaded; sacked by the latter some years since, and occupied by the former in November, 1841. Since the downfall of Sheikh Thammar (the head or chief of the Ch'ab tribe), Mohammerah has suffered severely, and trade for a time has declined in consequence;

still, however, possessing as it does such natural and artificial advantages, it would, under a settled government, at once engross the whole trade now carried on by India, Arabia, and Africa, with Baghdád and Baṣrah.

From its admirable position, having the Kárún to the north-eastward, by which it communicates with the Persian fertile provinces of Khúzistán and the possessions of the Ch'ab Sheikh's; the Shaṭ-al-'Arab to the north-westward, by which there is an uninterrupted communication with Baṣrah, Kórnaḥ, Hillah, Baghdád, and in fact all the countries watered by the Euphrates and Tigris, and a passage to the sea by both the Kárún and Shaṭ-al-'Arab; its merchants well informed, energetic, and enterprising men, and the people active, and much less bigoted than the Turks, the present possessors of Baṣrah, Mohammerah must ere long become, in a commercial point of view, the most important place on the rivers of Mesopotamia.

Besides the advantages which Mohammerah, considered either as a military post or commercial city, possesses, its great salubrity is of vast importance in a country so low and flat as the Delta of the Euphrates; and I am enabled, from a personal knowledge of it for some years, to bear witness to its superiority in this respect over any other part of the adjacent country—so much so, that when, during the hot months, duty called me from Baghdád to the town of Baṣrah or its vicinity, I invariably remained at or near Mohammerah, to which, in a great measure, I attribute the entire absence of that deadly fever which committed such havoc in the second expedition, under Captain Lynch, at its outset, and which can only be ascribed to its having been compelled to remain so long at Baṣrah. I may further adduce as a proof, that during the fifteen months I commanded the steamers 'Euphrates' and 'Assyria,' I only lost two men; one from an accident, the other in consequence of a chronic disease of seven years' standing: this latter was an artillery-man who joined the expedition from Bombay, and was immediately pronounced by the surgeon unfit for duty.

The salubrity of the one place, and the unhealthiness of the other, is entirely to be attributed to natural causes, yet, where these are baneful, they might easily be mitigated by a little energy and self-denial on the part of the rulers of Baṣrah, or rather the Páshá of Baghdád, for Baṣrah is in his Páshálik.

The one river (the Kárún)—rising, as it does, in the Bachtiyári mountains, and fed only by the snow and rains which fall there and by the river of Dizful, also similarly supplied—loses, in its short passage (a transit of about 160 miles) none of that freshness and invigorating coolness, so different from the Shaṭ-

al-'Arab, in which, in the month of August, I have myself, from personal observation, known the thermometer (Fahr.) immersed in the river, stand at 96° ; while in the Kárún (the places of observation not 200 yards distant) I never found it above 80° . The cause is this:—The banks of the river Euphrates, about 60 miles above Baṣrah, are low, and unless these are attended to, and embankments made, previous to the waters rising in May and June, the country is overflowed, and a swamp, or indeed a fluvial lagoon, of miles in diameter, is formed close to Baṣrah. From this, during the intense heats of summer, a deadly miasma rises, and devastating fevers each year diminish the inhabitants of a city, which once was amongst the proudest of the East; and as population decreases, parts of the city become uninhabited, neglected, and at last ruinous: in June, 1842, it presented but a remnant of what it was, not farther back than 1835. To do all that lay in his power towards rectifying so deadly an evil, the Sheikh of the large and powerful tribe of Montefik offered, if one year's tribute were remitted him, to repair the banks, and maintain them; and, will it be credited? Ali Páshá, the sensual, apathetic governor of Baghdád, refused. Like all Turkish páshás, however, he looks only to the present gain, not the future or permanent prosperity of the country over which he is placed. From this swamp, therefore, arises this deadly miasma; and as the river begins to subside in August, the water from it (heated by four months' almost vertical sun, and of great power) runs into the river; thus causing its heat and consequent unhealthiness.

In the Kárún and at Moḥammerah, on the contrary, a dry heat and rarified atmosphere is found, which is far healthier.

From Moḥammerah to Ahwáz the general course of the river Kárún is N.N.E. and S.S.W., passing through a country tenanted by the Bawí and Idrís tribes, both subject to the Ch'ab. Two towns only are on the banks: one, Idrísíyah, a small fort and town on the left bank, a place of no trade or importance, and more a stronghold than an abiding place; the other, Isma'ílíyah, commonly called Ismaili on the old charts, which carries on a little trade with Shuster and Moḥammerah.

The banks are abundantly wooded, the Arabs civil and obliging, and no obstacle or obstruction is offered in the lowest season to a vessel drawing five feet water.

As this part of the river, however, was surveyed by Major Estcourt in the steamer 'Euphrates,' and as his survey has been already published, any description from me would be unnecessary, nor would it add anything to the extensive and valuable information then collected by him. The modern town of Ahwáz, built on the ruins of the ancient Aginis, is the

first town of any size or importance the traveller arrives at, journeying from Mohammerah to Shuster. A collection of hovels rather than houses, built of the stones which once formed a part of the city on whose site it now stands, a barren desert on every side, vestiges of canals which once irrigated and carried plenty through the whole of this then productive country, water-mills, formerly used to grind the corn and press the sugar-canes which the country abundantly produced, but now neglected and useless, are all that remain of this once great and important city; and the knowledge of the power and importance it possessed in former times, contrasted with the present wretched state of the place, caused me to view it with peculiar interest; I could hardly reconcile the idea that the silent and sandy desert I then trod once teemed with life and cultivation, and that the town on which I gazed was really all that remained to mark the spot where a city, great, opulent, and powerful, once stood.

It must not, however, be supposed that its present barrenness is to be attributed to the sterility of the soil; the climate is still the same; the same magnificent river still runs through it, and might be made to irrigate and cause it to produce most abundantly; it still presents, as it has done for ages, a safe, quick, and easy mode whereby our merchandize might be transported into these important provinces of the Persian empire; and should it be asked what obstacle opposes the immediate attainment of so desirable an object, I confidently reply, the form of government under which the country labours: vast provinces are farmed out to the great officers of state, who, seeking only their own immediate benefit, grind and oppress the inhabitants of the part committed to their care, and only intent upon amassing to themselves wealth, care nothing for the present or ultimate prosperity of the country.

Here the first range of hills between the mountains and the sea commences, extending in a W.N.W. and E.S.E. direction, and which the author of a late work has mistaken for ruins, and even goes so far as to say that they are so "immense as almost to rival some of the lowest of the Bachtiyári chain" (I quote from memory). Having, however, been to the summit of them for the purpose of making observations, &c., I can only wonder at so great a mistake having been made, and supposing; as indeed the Sheikh himself told me, that the writer had been unable to visit them, state that they consist of a range of sandstone hills from 100 to 400 feet high, and extend at intervals upwards of thirty miles.

They are, in the vicinity of the site of the ancient city, excavated to a great extent on the western side, where the face of

the hill is abrupt: these excavations were used as cemeteries, and in some of those which were difficult of access I found a quantity of human bones.

This range crosses the river in four distinct ledges, on one of which is built the famous "Bund of Ahwáz," which is the only obstruction that has hitherto prevented the perfect navigation of the river. The bund still bears strong evidence of the proficiency the inhabitants had attained in the art of building; the cement which has been used being more durable than the rock itself, of which it is built, as this has in many places worn away, while the cement stands out in relief.

There being no natural impediment to the perfect navigation of the river, it may be well here to describe the only artificial one which exists, and which has so long, because superficially viewed, been supposed to offer a complete obstacle to a further ascent. This, as will be imagined, is the famous "Bund" (or dam) of Ahwáz, which stopped the 'Euphrates' steamer in her projected ascent of this river in 1836, and which, when I first saw it, certainly appeared to present an almost insurmountable obstruction. On a close and personal examination, however, and by having a boat carried overland above the fall, and then dropping down with the current, sounding as I passed through, to be sure that no sunken rocks were in the channel, I felt convinced that, with only the appliances in common use among nautical men, I could with ease surmount it. My success on the first trial is the best proof that I was not mistaken. This bund or dam is, as it were, a wall built on one of the ridges of rock which here cross the river, for the purpose, when the country was formerly under cultivation, of keeping up the water to fill the canals for irrigation.

At the western end of it is an opening about 40 yards broad, and through this (with the exception of a portion of the water that finds its way over other small places, where the Bund now, by time, is worn or broken away) the whole of the river, here about 200 yards broad, rushes with a fall and velocity at first sight quite enough to induce the supposition that no steamer of 100 feet in length could be forced through it.

As I have however before said, I succeeded on the first attempt in overcoming it, and having thus practically demonstrated that it really is an obstacle of but little importance, trust that advantage may be taken of the knowledge thus obtained.

This examination of the Bund was at the time of my first visit to Ahwáz in June, 1841 (the lowest season), when I also made a trigonometrical survey of the river in its vicinity, and finding that a good channel not only existed through it,

but also through the other ridges of rock which here intersect the river, I determined, should an opportunity offer, to ascend the river to its source. I was at that time prevented in consequence of having to return to Baghdád, but cherishing my hope, I patiently waited until March, 1842, when I again found myself at Ahwáz, resolved that nothing short of impossibilities should bar my further progress. Of the salubrity of the climate it will only be necessary here to mention, that though the thermometer stood at 113° Fahr., under doubled awnings on board the steamer, I was constantly either in an open boat without awning of any kind, or travelling over the country, taking the necessary angles, &c. for my survey, without either any of my crew or myself being affected by the great heat.

Having thus prepared the way first by an examination of the obstacle itself, and secondly by propitiating the chief of the town, for he had at first shown great jealousy regarding my proceeding upwards, I on my second arrival, in March, 1842 (the highest season), at the scene of my former labours, at once pushed for the opening in the Bund. The whole power of steam was however unavailing, and twice was the vessel driven back. I succeeded, indeed, in getting to the crest of the fall, but to force a vessel over was beyond the power of the steam-vessel I then commanded.

Finding steam alone unavailing, I sent a large hawser or tow-line to the opposite bank, and by the application of tackle common to nautical men, succeeded in overcoming the current, and passed through the Bund, which, until then, had been supposed to offer an insurmountable obstacle to the perfect navigation of this river.

It may readily be imagined that it was with no small feeling of gratification I anchored near the town in sight of the spot, and within hearing of the roar of waters which marked the difficulty I had just overcome, and that my satisfaction was great at being the first who, in a steam or other vessel of 100 feet in length, had attempted and successfully achieved the passage of that which had hitherto been considered impossible, and hazardous even to the native boats which attempted it, and that I had thus opened the navigation of the most important river of Susiana. From hence I dispatched a messenger to the Mu'tamidu-d-daulah, and after communicating with the Sheikh, proceeded onwards. Leaving Ahwáz, and following the course of the river upwards, the country immediately in its vicinity is uninteresting, being a gravelly plain without any cultivation; nor has it on its banks any remarkable objects of ancient or modern history to interest the traveller; and at the

time I passed through, from the intestine disturbances of the country, but few Arabs were to be seen, and those only the Anáfíyah, a nomade tribe on the left, and some wandering Bawí, bent on plunder, on the right bank. Some idea of the inefficiency of the government of this now distracted country, and the lawless state into which, in consequence, the tribes have fallen, may be formed from the fact that the Bawí have been known to plunder almost up to the gates of Shuster, and the wild Bachtíyári to those of Teheran and Ispahan.

Pursuing a tolerably straight course to the north-eastward through a perfectly alluvial soil, and one capable of the highest cultivation, the next town we arrive at is Wáis, in latitude $31^{\circ} 40' N.$, and 20 miles E. of Ahwáz: it is the first place of any importance between that town and Bund-i-Kír. It bears about $\frac{1}{4}$ N. E. from Ahwáz, and is 35 miles from it by the river, in a straight line 30, and is situated at the end of a long straight reach of about 10 miles, running almost directly S. from Bund-i-Kír. From the peculiar formation of the banks of the river in this reach, being very abrupt, and its perfectly straight course, I am very much inclined to suppose it to be a continuation of the original bed of the Āb-i-Gargar canal cut by Shápúr from Shuster, and which we read once ran to Ahwáz; and I am the more confirmed in this idea from seeing no remains of a canal which could be a continuation of that immense work, if in truth it was so continued, sufficiently large to warrant any other supposition.

N. 1 W. from Wáis in latitude $31^{\circ} 49' 30'' N.$ stands the town of Bund-i-Kír, the ancient Asker Mokram, celebrated in former times as the site of a renowned city, and in the present as the spot where the three noble though neglected streams of Dizful, Shuster (Kárún), and Āb-i-Gargar unite, and well worthy, from its position as well as from a recollection of the rank it once held, of the pains which modern travellers have taken to describe it. As, however, the time at my disposal to ascend the three streams which here unite was limited, and as I felt convinced that a practical proof of the ease with which they might be navigated, and a trigonometrical survey of them and the adjacent country must prove highly beneficial, I devoted my whole energies to their examination, leaving to travellers who had preceded me (Colonel Chesney and Mr. Layard), and who had been enabled to direct their time and attention to this most interesting country, and whose labours have doubtless already been before the government, to describe those objects which belong more properly to the general traveller, than to one who like myself was necessarily confined almost exclusively to the river. Fearing also that I might

fail in that wherein they have so well succeeded, and that, were I to attempt it, I could not add anything essential to the knowledge of the country which they then, and I now, have traversed,—I shall confine myself to a few remarks, the results of personal examination and inquiry on the inhabitants, the rivers, and the country immediately bordering on these.

The river Kárún, the principal subject of the present memoir, rises in the Kúh-i-Zerd (yellow mountain), near Ispahan, and after traversing the valleys amongst the Bachtiyári mountains, finally emerges from the hills 3 miles N.E. of Shuster. Traversing that town it continues its course to the south-westward through the plains of Rám Hormuz, passing successively the towns of Bund-i-Kír (the junction of the river Dizful and Āb-i-Gargar), Waís, and Ahwáz to the sea, in which it disembogues in the manner I have before described. It is perfectly easy of navigation at all seasons to vessels drawing 4 feet water, and admirably adapted for steam communication, as I shall subsequently point out, from the sea to within 6 miles of Shuster; but from this distance to the town the navigation would be difficult, from the rapid current here, about 5 miles an hour, and numerous pebbly banks which abound in the bed of the river between these points. From these causes, and from the loose gravelly nature of the soil in the bed of the river, great difficulties would present themselves to a vessel getting afloat again, should she accidentally be driven on a bank or shoal; and in the event of this river being ever used, I would not recommend that steam-vessels of the present construction should proceed higher up the river than the spot which I have particularly marked in the trigonometrical survey I was fortunately able to obtain. I shall show in the course of this memoir that for steam communication with Shuster the Āb-i-Gargar is the channel which will be found best adapted. From the point mentioned, however, the river presents no difficulty, but runs in an easy descent with a current of about 3 miles an hour to Bund-i-Kír, watering a country which might be made most productive, and one which from the nature of the soil, a rich alluvium, and close approximation of three streams, all easy of navigation, would amply repay the toil of the cultivator.

Tradition, indeed, has handed down the recollection of the time when this country which is now almost a desert, and which bears no mark of ever having been anything but the temporary residence of the wandering Arab, once teemed with happy villages and attendant cultivation, and strange as it may appear, from the extreme desolation which now presents itself to the view of the traveller, immense date-groves lined

the banks, and must have imparted a great idea of wealth and comfort to this, even yet, beautiful country.

Let it not be supposed, however, that the inhabitant of these regions, timid from constant alarms, and poor from as frequent spoliation, is yet totally ignorant or neglectful of the bounties which nature has bestowed upon him. The remains of ancient and existence of modern canals which completely intersect the country immediately to the southward of Shuster, attest that the iron despotism under which they live, and which we should suppose would cause them to become careless of everything, has not been able to prevent them in some measure from taking advantage of the blessings they so eminently possess. Favoured with a highly productive, almost spontaneously producing country, enjoying a healthy climate, which for nine months in the year is delightful, abundance of canals to convey the never-failing waters of the river to their fields, even now, in the iron days of their country, they reap, wherever they venture to sow, an abundant harvest. Contrary to the general rule, that adversity makes men selfish and morose, the Shusteris, oppressed by the government which should support them, viewed as aliens, almost as outcasts from the parent stock, their chiefs plundered and oppressed, their country ruined, and themselves and property at the disposal of any Persian official who may be sent into their country, still exhibit many noble traits of character, and exercise the most liberal hospitality, the greatest generosity, and the utmost attention to a stranger's wants that ever it was my fortune to witness. A town of Sayyads,* they are without exception the least bigoted of any Mohammedans I ever saw, and are totally different from the Persians, in whose territory they really are, and from whom they are partly descended, in not oppressing when they have the mastery, fawning when in your power, and begging at all times and from every one.

When I mention that at the time I was receiving the greatest attention from the authorities and people, the vessel was aground, and I in a measure helpless, and that I was hardly permitted to pay for workmen I employed and for date-trees cut and rafted down from above the rapids, a distance of 10 or 12 miles, and that the presents I almost forced upon them were most reluctantly accepted, those who know the character of the Asiatics most will best appreciate their conduct.

In writing thus highly of the Shusteris, I fear I may be considered as having drawn too highly coloured and flattering a picture. Let future experience and knowledge of them decide the point, nor, until they are found unworthy of the cha-

* Or Sherifs, *i. e.* Descendants of the Prophet.—F. S.

racter I have given of them, and which, I am glad to find, is similar to the opinion which that indefatigable traveller Mr. Layard has formed, let them be classed with their oppressive neighbours the Persians.

This short but just tribute to these people, who treated not only myself but my crew with the greatest hospitality and kindness, though contrary to the determination I had formed to confine myself to a description of the rivers and other matters more within my province, will, I trust, be considered, although a digression, yet an act of justice on my part. One thing, however, has been learnt, and should be borne in mind, that from their evident leaning to the English, and wish to court their protection, as indeed expressed to me by some of their most influential chiefs; the exertions they made to open a correspondence with and obtain the countenance of our late Resident at Khárej; their hatred of the Persians, who have well, by their tyranny, oppression, and exactions, earned it; the proximity of Shuster to India, which, thanks to steam, can now be made at any season a passage of at most 18 days; the great facility offered for steam-navigation by vast quantities of wood admirably adapted for fuel all along the banks; the vicinity of all the tribes on the banks; the successful opening of the navigation of the river, which must greatly have tended to give them a favourable idea of our resources, and ourselves a consequent increase of moral power, all combine to point out Shuster as a spot which should be viewed with peculiar interest by us, whether for the advantages of mercantile communication, or in the event of a war with Persia; for from this point we might not only supply Khúzistán, one of her finest provinces, but pour an unlimited force into the heart of the country.

Naturally strong, completely insulated, and capable of being rendered almost impregnable, with no obstruction to our water-communication with India, Shuster might in our possession become of the greatest importance to us both in a military and political point of view, if ever the time should come, which I trust is far distant, when we shall be at variance with Persia.

Shuster, in latitude 32° N., and 10 miles E. of Bund-i-Kír, is situated on the river Kárún, at the foot of the Kuh-i-Fedelakh, (?) a remarkable hill forming part of the Bachtiyári range of mountains, in the north-eastern part of the province of Khúzistán. The town is built on a small hill, which, rising gradually from the south-westward, increases in elevation to the citadel, which presents, on the north-eastern side, an abrupt face of about 150 feet in length, having the river immediately

beneath it. There are at present about 8000 inhabitants, nearly all Sayyads, and though Sheikhs, not at all bigoted. The place is entirely built of stone, and though not wholly recovered from the effects of the plague which nearly depopulated it about six years ago, and from a flood which occurred in 1840, still possesses many buildings remarkable for their elegance. Like all towns in the East the streets are remarkably narrow, and showed in a strong and fearful light the ravages the plague must have made, as at each footstep the carved stone marks the spot where numberless victims to that scourge lie buried.

Having the river on two sides, and on the others a wet ditch, which might easily be put in order, the place itself, naturally strong from its position, might be rendered sufficiently so to resist any other than a well-appointed European force. May we, however, should we in future have any intercourse with Shuster, know it only as the emporium of a large part of the commerce of Persia, and as the road whereby our merchandize may find its way into that country!

It may appear strange that feudalism should exist in this apparently insignificant part of Persia; but so it is, and each Mahullah, or quarter of the town, owns its own separate chieftain, whose followers are ever ready to rally round his standard, whether for intestine or foreign warfare. The people appear to be perfectly happy under this form of government, and regard their chiefs more as the heads of families than as those who have the power of life and death over them. Of a race between the Persian and the Arab, they combine the polish of the one with the frankness of the other, nor did I ever, in any country, meet greater hospitality than was shown me by these people.

The whole town itself is, as I have before stated, under the Persian government, and being in a remote nook, and separated in a manner by the mountains from the rest of Persia, has always been viewed with much jealousy; that government knowing that opportunity alone is wanting to induce them to throw off the yoke now so grievously laid on them, and join the discontented tribes of Ch'ab and Bachtiyári.

The revenues of the province of which it forms a part are given by the Shah of Persia to the Mu'tamidu-d-daulah, who, besides collecting to the utmost that which is his due, takes frequent opportunities of making a visit to and sweeping the country of everything. It was during the time that I was in the country that one of these visitations occurred, and the scene of desolation, spoliation, and misery defies description: those only can properly understand it who have visited a country or place doomed by the Persians to such an infliction.

I shall here mention one or two incidents which occurred during my stay, and to which I was an eye-witness, which will give some idea of the oppressive way in which power is exercised by the Persian authorities, and also of the passive, almost stolid indifference with which it is submitted to; the result doubtless of long-continued and heart-breaking oppressions.

It will be borne in mind that in a previous part of this memoir I mentioned, that a very high officer of state (the Mu'tamidu-d-daulah) was in the vicinity of Shuster, on his return from Feljiyah (the principal town belonging to the Ch'ab Sheikh) to Ispahan. After having received from the chiefs of Shuster immense, and in some instances to them perfectly ruinous, presents of money, horses, and other valuables, he, one morning, shortly before finally quitting the place, sent for one of the chiefs of the town and informed him that he intended to farm out to him the tract of country lying between the river Kárún and the Āb-i-Gargar canal. This was remonstrated against in the strongest terms, as the chief had been already nearly ruined; and the sum required was about twice as much as he could ever hope to reap from the possessions thus forced upon him. Remonstrances however were unavailing, and 2 years' rent in advance was demanded within three days. Knowing that opposition to the Mu'tamid's will would only draw down upon himself and family much greater evils, and would be of no avail, the sum was made up and paid within the time; when, in a few days more, the Mu'tamid demanded and succeeded in forcing from him a third year's rent, and the poor fellow was so crippled in consequence, that part of his very household furniture had to be parted with to make up the sum, and he whose mansion was formerly thronged with retainers, and whose stables were filled with the choicest Arab horses, was reduced to comparative poverty: still, however, his people respected and regarded him as before, and though the vast reception hall was almost denuded of its furniture, still every evening saw it garnished with a repast for some forty or fifty of his immediate poorer kinsmen, at many of which I attended, and not only experienced from himself and family the same dignified attention, but from his kinsmen the same respect, although they must have known that I was in their country on friendly terms with, and ostensibly to visit, the Mu'tamid himself. Again, an officer of the Mu'tamid's took up his abode, by the invitation of its owner, in a house belonging to another chief, who not only found a separate table for his guest and followers, but, on provender becoming rather scarce, was told that as long as the green corn was standing in

his fields, *his* horses must not want. The corn was consequently used as provender; and to sum up, not only did he on his departure take all the furniture of every room he had occupied, but even the very cooking utensils which had been used. Many other and more gross instances I might mention, which would, however, answer no purpose, and only unnecessarily occupy time; I shall therefore leave to others to imagine what must be the feelings of the people on whom these outrages are perpetrated, towards those who inflict them. It is the recurrence of these and similar scenes, and the conviction that they have no security for their property, which prevent the merchant from trading, the husbandman from improving the land, and the artizan from extending his trade, as they know not at what hour they may be robbed of everything they possess.

The country about Shuster produces grain of all descriptions in abundance, and the people only require encouragement, and a feeling of security, to export opium, wool, cotton, and flax, all of which can be abundantly produced.

It would import in return sugars, hardware, cutlery, chintzes, cottons, and woollens, nearly all of which are now supplied by Russia, notwithstanding the tedious land-carriage to which merchandize coming from that country into the southern parts of Persia must be subjected. I shall, however, refer to this subject in a subsequent part of this memoir.

Little trade is at present carried on by Shuster, its principal imports being tea and other Russian articles from Ispahan, and dates, rice, and a few English articles from Baṣrah. Many efforts have indeed been made by some spirited inhabitants of Shuster and the vicinity to commence a trade on a larger scale than is now carried on; but, checked by the discountenance of the Persian authorities, their efforts have been abortive, and their desire to better themselves and country has been met with a studied indifference in their rulers, whose aim has ever been to prevent Shuster from rising to that importance which its situation and natural advantages justly entitle it to hold.

Close to the hills, by which the inhabitants may enjoy any temperature, the parching heat of summer alleviated by the snow which is procured in profusion throughout the year, watered on all sides by the river and canals, numerous extensive gardens close around, Shuster presents a most pleasing appearance, and might, from the natural advantages it possesses, soon be held in that estimation it was formerly, and become one of the first commercial towns in the southern part of Persia.

The water-works, for which Shuster is so justly celebrated,

consist of a number of water-mills cut through the solid rock, and worked by the water which is admitted from the river to fill the Āb-i-Gargar canal, a work which vies in magnitude and real utility with any undertaking of the kind, whether ancient or modern.

It runs through the town, or rather between the town and suburbs; and as this is built on a hill, the substratum, which is sandstone rock, has been cut through a depth of about 100 feet to bring the bed of the canal on a level with that of the river, where the two again unite at Bund-i-Kir.

Unless destroyed by some convulsion of nature, it will endure as long as the world lasts, and will for ever commemorate the reign of Shápúr, under whom it was undertaken and completed.

Over the main river opposite the town is the bridge, consisting of nine arches, and built entirely of stone; and that some idea of its strength may be formed, I need only mention that, situated as it is at the very foot of the hills, the river, from heavy falls of rain and snow melting on the mountains, has been known to rise 30 feet in one night, converting the stream into a torrent, yet has this bridge stood for years until the spring of 1842, when, in an extraordinary flood, it remained completely under water for two days, and on the river subsiding a part of the structure was found to have yielded to the immense pressure which it had had to sustain.

It is erected on a bund or dam, thrown across the river, consisting of blocks of stone from 15 to 25 feet long: to accomplish this work the whole river was turned into the Āb-i-Gargar, leaving the bed of the river dry. The bund answers two purposes, viz. that of giving a solid foundation for the bridge, and keeping the river always sufficiently high to fill the Āb-i-Gargar and other canals on which the fertility of the country depends.

I cannot quit the subject of Shuster without adverting to the extraordinary cheapness of articles of food, and which of itself tends to show of what the country is capable. On my first arrival I purchased live sheep, the carcasses of which when killed weighed from 25 to 30 lbs., at from 3s. to 4s., and this although they were brought a distance of 6 miles. Bread of wheat-flour, 20 lbs. for a shilling, and vegetables for almost anything I chose to give, and this too at a time when they were suffering from the extortions of the Persian troops, the force commanded by the Mu'tamidu-d-daulah being then in the vicinity of Shuster, *en route* from Feljiyah to Ispahan.

Before concluding these few remarks on Shuster, its vicinity, and inhabitants, it may be well, having once or twice alluded

to the "Bachtiyári," to attempt some faint description of them, especially as they border so closely upon Shuster, and have of late been much mixed up with its inhabitants.

From having, however, been enabled to see but little of this most interesting region, and from that indefatigable traveller Mr. Layard, whose forbearance, aptitude, and amiability of disposition well entitled him to succeed in an undertaking of so much danger, having succeeded in traversing nearly the whole of their wild, beautiful, and mountainous country, I feel that I should be trespassing on dangerous grounds, were I to enter too fully upon a description of them, their manners and customs, and abodes. Unappalled by the dangers to which he was aware he was subjecting himself, nor dismayed by the untimely fate of two late English travellers, who had attempted to pass through part of the country, Mr. Layard boldly attempted this arduous and highly dangerous task, and after some most perilous adventures and narrow escapes from almost certain death, has fully succeeded in collecting much and valuable information; and what is even more important, establishing a good feeling between these mountaineers and ourselves.

It is from his pen therefore that their history and mode of life, together with the statistics of their country, must be learnt. I cannot, however, omit noticing them, their character having struck me as being so superior to that of the generality of Asiatics, and savouring so much of that chivalric spirit once so cherished by ourselves.

The mountain tribes of Bachtiyári, the inhabitants of that stupendous range of mountains which traverses the western parts of Persia, and are known by the same name, are the lineal descendants of those unconquered tribes who, often beaten but never subdued, at last succeeded in cutting off the Roman army sent against them, the corpses of which fed the wolves, and their bones whitened the desert, the inheritance of those they might overpower, but never conquer. When viewing one of those free and noble mountaineers, armed and mounted for the fight, the deadly matchlock taking the place of the now almost rejected bow, but little stretch of imagination is required to fancy that you have before you one of those heroes and patriots, who, in spite of the power and terror which the Roman legion carried with it, deluged the sands with the blood of Crassus and his invading army.

Renowned as they then were for their unrivalled use of the bow, and for being able in full flight to take deadly aim at their pursuer, that and all other feats of horsemanship fall far short of what I have seen done by a modern Bachtiyári, and

which is not considered amongst them as anything extraordinary. A mounted horseman, armed with mace, sword, three pistols, and matchlock slung across his back, will put his horse off at full gallop, then flinging behind him his felt skull-cap, will unsling his matchlock, and turning round on the saddle, the horse still at full gallop, fire, and almost always strike the object. Their admirable horsemanship, the perfection of training to which they subject their horses, together with the perfect command they have of all their arms, their being able, either in approaching or retreating, to lay themselves along the horse's side, render them the most efficient light cavalry in the world for acting independently, and this is allowed by military men who have had an opportunity of witnessing their evolutions.

It is likewise gratifying to us to know that these mountaineers, who have so long been considered barbarous and inimical to Europeans, have been greatly belied, as they treated Mr. Layard as they doubtless would any other European, who could and would free himself from the prejudice so common to those who consider themselves first in the scale of nations, in the most hospitable and kind manner, and Moḥammed Takí Khán, one of their most powerful chiefs, made many an earnest offer to him. Having had the pleasure of seeing this celebrated chieftain, it will not, I hope, be considered irrelevant if I shortly notice one or two acts of his, more consonant with the greatest philanthropy than with the cruel and blood-thirsty disposition which has been ascribed to these people.

Some time ago an English adventurer who had been in his service, was entrusted by him, without security of any kind, with a vessel laden with the produce of his country, that by conveying it to Basrah a trade might be encouraged between it and Shuster. Unfortunately for the success of the experiment, the boat and crew were totally lost, and before another attempt could be made an event happened which I shall presently relate, and which I fear has for ever crushed that generous chief.

Again, his treatment of Mr. Layard, of whom he could have known nothing, coming as he did without even an attendant, and his subsequent offers to him, were of almost princely munificence.

All his actions are described as being most just, and the country enjoyed more security and repose under him than had been known for many years previous. He consequently rose to great power, and would soon have been enabled to throw off, had he wished, the Persian yoke.

This state of things, however, militated too much against

Persian policy, and the Mu'tamidu-d-daulah came down determined to get possession of his person at all hazards. Secure in his inaccessible strongholds, he laughed at the attempt, and might have remained while he lived, free and unharmed; but lured by the most sacred oaths of the Mu'tamid himself, and of an officer high in the service and even a múlla, who bore to him a Koran on which the Mu'tamid had sworn that, if he would visit his camp to discuss the matter amicably, he should return in safety, he consented, contrary to the advice of all his friends, to an interview, and left his castle with only a few attendants, and sought the tent of one who regarded neither oaths nor treaties, nor even the dictates of honour when they interfered with his wishes. Immediately on entering the tent he was seized; and when I last saw him was lingering out, to one of his noble spirit, a miserable existence in chains. With these few words I conclude my sketch of these mountaineers, who appear worthy of a higher place in our estimation than they have yet held.

Between the first range of hills under which the town is situated, and the second or next eastern, where the river first emerges from the mountains, is the plain or valley of Akkille (*Āk Kal'eh?*), watered by the river which passes through it, and numerous canals, and presenting, as far as the eye can reach, one vast corn-field, studded with villages and date-groves, and numerous gardens, amongst which the orange is most abundant.

There also are the remains of a very large canal leading from the river close to the second range of hills, and which, though centuries must have passed since it was made, for no memorial of the time of its construction exists, is even now above 80 yards broad. This I am informed once ran through the plain to the eastward of the river, and was in fact the main artery whence the lesser canals received their supply. Modern canals of great extent, and in good repair, with which the whole plain is intersected, serve now to irrigate the country, and assist nature in rendering this one of the most fertile spots in the whole province.

This valley is about 40 miles long, and from 10 to 15 broad, and from its position, receiving all the rich soil washed down from the mountains, necessarily most productive; and it is from here that Shuster, and a vast extent of adjacent country, are supplied with corn of all descriptions.

To reach this place from the town, the pass winds round and along the eastern face of the gorge, from which the river finally emerges from the hills into the low country, and which is here about 100 yards broad, unfordable, and has a very rapid current. The side of the mountain round which the pass winds is very

precipitous, and the path itself barely passable for loaded animals. To one therefore who like myself had for so long been used to the sterile and sandy wastes of the Mesopotamian desert, the scene, as we mounted the pass and looked down upon the fruitful valley before us, was truly interesting, and I may therefore be allowed to describe it. Frowning precipices over head, which seemed as though the slightest breath of wind would dislodge them from their places, the pass winding now round, now under them, a sheer descent of from 300 to 500 feet down to the foaming torrent below, the solitude only broken by the sullen dash of the waters against the rugged base of the cliffs, and the vast masses of rock which the hand of time had loosened from the mountains; the distant view of the plain beyond, where quiet villages and teeming corn-fields offered such a contrast to the scene of desolation we were then treading, made this spot one of the most beautiful I had ever beheld; and I felt that toleration and civilization alone were wanting to make it one of those which would best repay any toil of the husbandman.

The gorge at the second range of hills where the river emerges into this valley is a remarkable one, and has an apt tradition annexed to it.

On either side of the gorge, on the very precipice itself, are the remains of two castles, the one called Kāl'eh Rústam, the other Kāl'eh Dokhter, about which there is the same tale that is told of so many places of a similar description, and which is so frequent among Asiatics.

A lover, separated by the envious waters from his mistress, and whose passion daily urges him to dare the foaming torrent, is the tradition of these two certainly remarkable hill-forts. That they were the erection of some veteran soldier is most probable, as they entirely command the pass from the low to the high country, and must have been, at the time they were built, impregnable.

Even here, in the very mountains themselves, the river is not fordable, nor could I perceive any obstruction that a well-found and powerful steamer might not overcome. I would not, however, be understood by this remark to recommend the attempt, as no sufficient inducement could be held out to warrant the expense of such an undertaking; nor would any material benefit be derived, or any other end gained, unless indeed the proud satisfaction of knowing that our steamers had passed from Basrah to Bális on the one hand, and from the sea to the Bachtiyári mountains in Persia on the other, thus completely opening the navigation of the Susianian rivers;

and that the most friendly feelings had been encouraged and maintained in those regions.

Having thus attempted, faintly, I fear, to describe Shuster, its inhabitants, and the incidents which most drew my attention, together with the advantages which a communication with it presents, I must for ever regret that pressing duty, and consequently imperious necessity, confined me to the vessel and river, when my inclinations would much rather have led me to extend my researches into the highly interesting country on its banks: to visit the natives from the khán to the felláh, from the prince to the husbandman, as one of themselves, and thus enlarge my knowledge of those who certainly commanded my esteem and respect, and whose every offer of aid and assistance, sincere too from having been tested at a time when they must have viewed my arrival with peculiar jealousy (from being the first English vessel ever in their waters), was made and fulfilled with a frankness and evident desire to serve, that I could not have expected from Sheikhs and Sayyads to a Christian.

That much of this good feeling on their part is owing to the high character a late English traveller bears among them, I cannot doubt; and should it ever be the wish of our government to establish an intercourse with these people, Mr. Layard's efforts will not have been thrown away, as I am convinced they entertain a most favourable opinion of the English character, from having seen the kindly sentiments with which they regard him, and the way in which I, as an English officer, was received by them.

Second as an offset from the main stream, though worthy of holding the first place from its real importance, is the Āb-i-Gargar, or artificial canal cut by Shápúr, which, leaving the main river at Shuster, and pursuing a south-easterly course, re-unites with it at Bund-i-Kír, where is also the confluence of the Dizful.

Tradition reports that it anciently ran to Ahwáz: whether or not it did so, I must leave to others to decide. I am, however, led to suppose that Bund-i-Kír was not anciently its termination, for as I have before mentioned, the long straight reach from that place to Wáis bears a much greater resemblance to an artificial than to a natural channel.

It is much better adapted for steam-navigation than the main stream, as in it the current is less, and Shuster itself can be approached nearer by 3 miles than by the river.

The canal itself, which, I have before observed, leaves, or rather is cut from the Kárún at Shuster, runs to the southward

and eastward, and finally to the south-westward, for a distance of about 10 miles, through a beautiful and highly productive alluvial plain or valley, in some places a mile, in others more than a mile wide. Like all streams running through a similar soil, it is rather serpentine, and winds from side to side of the valley, thus traversing and completely watering the whole of it. This valley is bounded by steep marl cliffs, which are in fact the banks that formerly restrained the waters in their course, when the whole river was turned into this channel while the bridge was being built. The sketch, however, which accompanies this memoir will better explain what it really now is.*

Continuing the course to S.W., these high cliffs gradually approximate, until, at the junction of the canal with the other rivers at Bund-i-Kír, they form the immediate banks and tower perpendicularly over head to a length (height?) of 130 feet.

The depth of water in the Āb-i-Gargar is nearly uniform, being, in the channel, from 12 to 18 feet in the lowest season; the breadth varies from 60 to 120 yards, with a current of not more than 2 miles an hour, until after passing the town of Khasámābād, when as it approaches the hills the current gradually increases, until at about 2 miles from Shuster it runs at the rate of about 5 miles an hour. At Khasámābād trading-boats to and from Shuster load and unload, their cargoes being conveyed across by land-carriage.

To ascertain beyond a doubt how far the canal was capable of being navigated by the steamer I then commanded, I ran on until within 1 mile of the town, where the passage was finally closed to me by a natural ledge of rocks reaching right across the river, with only a small opening about 10 yards wide, through which, however, boats of 20 tons can and do pass into the very heart of the town; and thus might we either land troops, or our merchants their goods, from either England or India, in the very heart of the town; the advantages of which, especially in a country where land-carriage is so expensive and precarious, are too evident to require comment.

Half a mile above the point to which I attained is an artificial bund or dam, on which are the remains of numerous water-mills; these, however, could only have been used when the whole river ran through the canal, as they are now many feet above the present level of the water. Good wood for steaming is plentiful along the banks and on the small islands in the

* Lieut. Selby's survey of the country not having been yet received from Bombay, we regret we can only give, in illustration of this paper, a sketch supplied by Lieut. Selby from memory.—Ed.

centre of the stream; but as the distance between Bund-i-Kír and Shuster is so short (only about 8 hours), no intermediate wooding station would be necessary.

Little known, and less used than either the Kárún or Āb-i-Gargar, is the river of Dizful, a stream which only requires opportunity to be made as useful as either of the two with which it unites at Bund-i-Kír: it is extremely tortuous, and has consequently little current; wood abounds all along the banks, which are inhabited by the large and powerful tribes of Anáfíyah and Al Hadhar, extremely well disposed towards us. This river, leading through so fertile and important a part of Persia, presents great encouragement and facilities for steam navigation, the results of which would be most beneficial; and now that I have both seen and traversed these rivers, and know their capabilities, it is a source of extreme wonder and surprise to me that they, being as it were the high road into the very heart of that part of Persia with which we now take such a roundabout method of trading, should so long have been neglected, and that we should have so quietly shut our eyes to their vast importance. Russia, though struggling with a tedious land-carriage, supplies the markets of this province with European articles; which we could much more easily do by water at once from England or our colonies.

A commercial treaty entered into with Persia, our steamers running on the rivers of Mesopotamia, those rivers strictly in the Persian dominions, and having been easily and safely traversed by a vessel possessing much less capabilities for river navigation than the boats which are now built for that purpose, what prevents us, I would ask, from commencing that intercourse with the inhabitants which their advancement in civilization and our own interests so imperatively demand?

An extremely healthy and productive region, friendly tribes on the banks of the rivers, the country fertile in objects of interest both to the merchant and geographer, our present political relations with Persia considered, all tend to point out these rivers as the means whereby we may not only increase our political power, but our commercial advantages; for so long as we can, as we now do, entirely command the access to these rivers, our perfect and easy navigation of them will ever be considered by both the authorities and the people.

I exceedingly lament that an unavoidable detention of a month longer at Shuster than I had anticipated prevented my reaching the town of Dizful, as the water had already begun to fall, and I feared, not having a previous knowledge of that river, that if I ascended higher, and were stopped by grounding or other accident, I might, should the river fall very low,

be detained throughout the year. I succeeded, however, in ascending with ease some miles above Kal'eh Bunder (Band-i-a?), which is not, I believe, more than 13 miles from Dizful. Up to the point I attained, and on which therefore I can with certainty speak, the river is remarkably good, having a channel of not less than 6 feet in the low season, with the banks abundantly wooded, and the neighbouring Arab tribes exceedingly well disposed towards us. They freely supplied me with provisions, and I found no difficulty in purchasing fire-wood for fuel from them at the same rate we were then paying on the Tigris, where our steamers had been running for many years.

From Bund-i-Kír to Kal'eh Bunder there are no obstructions in the river (more than are met with in all rivers running through an alluvial soil); shoal-spits running off the points, and in long reaches some shoal-patches, are all the difficulties, if they are to be called such, that exist.

At Kal'eh Bunder, an old fort on the right bank of the river, the country, which from Bund-i-Kír upwards is a level plain, becomes hilly, and here also is another, a natural bund. It is formed by a ridge of rocks running half-way across the river, and which at this place is narrowed also by an island. The current runs through at the rate of about 6 miles an hour, so that, formidable as I had been led to suppose it, I was truly gratified at finding the 'Assyria' steam through with perfect ease.

From hence, however, the current begins to run much stronger, the descent in the land being greater; a well-formed and powerful steamer, however, such a one for instance as Mr. John Laird, of Liverpool, has just built for the navigation of the Indus (by the direction of the Honourable the Court of Directors), would find no difficulty in running throughout the year, continuing through a beautiful country diversified with hill and valley, and evidently capable of high cultivation. A few miles further on is Abú Beshá, an old imaum or tomb, and about 5 miles beyond this is the point to which I attained, and from which with great reluctance I felt myself compelled to turn back.

Having attained to within 5 miles of Shuster by the Kárún, and within a mile of it by the Ab-i-Gargar, it may be imagined how anxious I was, by reaching Dizful by its stream, to complete the ascent and survey of these as yet unknown rivers. My regret, then, at having to give up this much-desired and almost attained object may be felt; and it will, I am sure, be acknowledged that nothing but a dread of compromising our government with the Persian authorities, should I be unavoidably detained a whole season in one of the rivers, determined me to surrender my much-cherished hope of completing to the

utmost what I am assured must ultimately be of so much benefit to us.

The river falling, being informed that a few miles further a-head it was fordable, knowing also that I had taken on my own responsibility the survey of these rivers, and that I should be unable, in the event of being detained in the river during the season, to show any order for my undertaking, altogether determined me, and I relinquished my attempt at a further ascent with very mingled feelings of joy and regret—joy at having done so much, and great regret at having been unable perfectly to complete the ascent and survey of these streams.

With these few remarks, then, I quit the subject of these rivers, feeling assured that the day is not far distant when they will be as well known and traversed as the Indus or the Ganges.

Rivers situated like those of the Kárún and Dizful, taking their rise from an immense mountainous tract like that which feeds them, and having no parasitical offshoots to absorb the supply, are throughout their whole course affected only by rains which fall in the mountains whence they rise; and as these are yearly covered with vast quantities of snow, and as periodical rains prevail from November until the end of April, that time may be considered as the high season.

These rivers do not, however, like the Euphrates and Tigris, rise to a certain height, and maintain it for a time, but, affected by heavy falls of rain, which assist to melt the snow, or by an interval of warm weather, they rise and fall irregularly many feet.

The highest rise in 1842 was in February, when the whole country was inundated, and the banks in the lower part of the river, which in June, 1841, were 12 feet above the level of the river, were, when I passed up the ensuing February, on a level with it. From the waters being materially restrained by the Bund at Ahwáz, and from having sounded above it in June (the lowest season), when I found from 9 to 15 feet water, the difference in depth cannot be, as far as I ascended the river, more than 6 feet; and I have, in the chart of the Trigonometrical Survey I obtained, put down less water than I really found in the channel.

It may, therefore, be assumed, from my own observations and the best information I could collect on this important subject, that these rivers are never fordable between the points I reached and the sea. The Āb-i-Gargar, in consequence of its supply coming from above the dam at Shuster, is but little affected by any rise in the main river, and is at all seasons navigable for vessels drawing six feet water.

Having now adverted to the points which most drew my attention, and endeavoured to point out some of the advantages which may result from the navigation of these rivers, and shown, I trust, that no natural obstacle exists, I would wish, in a few words, to sum up the advantages and facilities which they offer.

If any political movement is to be attempted in this quarter—if the spirit of discovery and research continue to actuate, as it ever has done, our government—if a material increase in our commercial relations with Persia is considered of moment—if the connection of ancient with modern history, in some of its most interesting points, still continue to hold out charms to the antiquarian and geographer, then is this country one of those which should be most particularly examined, and which would yield an abundant harvest.

Again, if it is still our wish to extend our commerce, whereby we exist, or our influence in those regions, the want of which we may perhaps ere this have felt, or our knowledge of the statistics of this most interesting country, these rivers present the means whereby all this may be accomplished.

Here we have neither hostile Arabs, rapid currents, nor shallow fords to contend with; but rivers, easy of navigation and abundantly wooded, offer every inducement.

Five days, including stoppages of all sorts, and having to cut my own fuel, against, too, a current stronger than was remembered for many years—five days sufficed to ascend the Kárún from Moḥammerah to Shuster; and this, although I was detained ten hours, besides anchoring every evening about sunset.

This was by the main river; by the Āb-i-Gargar, with depôts of fuel laid, the ascent from Moḥammerah to Shuster might be easily accomplished, by such vessels as the 'Assyria,' in three days; by such as are now built, in two and a half.

The whole of the banks of these rivers being so abundantly wooded, it is hardly necessary to name any particular points which might, in the event of the steamers running on these streams, be made depôts for fuel. As, however, there are some which, from their peculiar position, such as being the constant locality of the Arabs, or from other sufficient causes, are better adapted than others, I shall mention a few, the fitness of which peculiarly struck me.

Kal'eh Idrísíyah, a mud fort on the left bank of the river, the residence of Arabs of the Idrís tribe, and eighteen hours' steaming from Moḥammerah, against the strongest current that ever runs in the river, appears to me well fitted for the first station. A steep bank, with deep water close by, and abun-

dance of tamarisk—the best wood for fuel possible—the people very civil and extremely willing to cut wood, are sufficient causes for this to be considered as well adapted.

Ahwáz, which of course would be a main depôt, is only 16 hours above Kal'eh Idrísiyah; here either coal, sent from Mohammerah, or wood, might be laid, though in its immediate vicinity there is none, nor any nearer than 9 miles. At this distance, however, there is abundance, which might be cut and laid at 6s. the 1000 lb., or one hour's consumption of the 'Assyria.'

From Ahwáz to Bund-i-Kír 10 hours, where an abundant supply may always be obtained, and whose people are remarkably civil.

As from hence to Shuster is only 9 or 10 hours by the main river, and 8 by the canal (Āb-i Gargar), depôts might be laid at any place along the banks. At Shuster itself, however, no wood for steaming could be obtained, that used by the inhabitants being very small and brought from the mountains, and not more than sufficient for their own consumption.

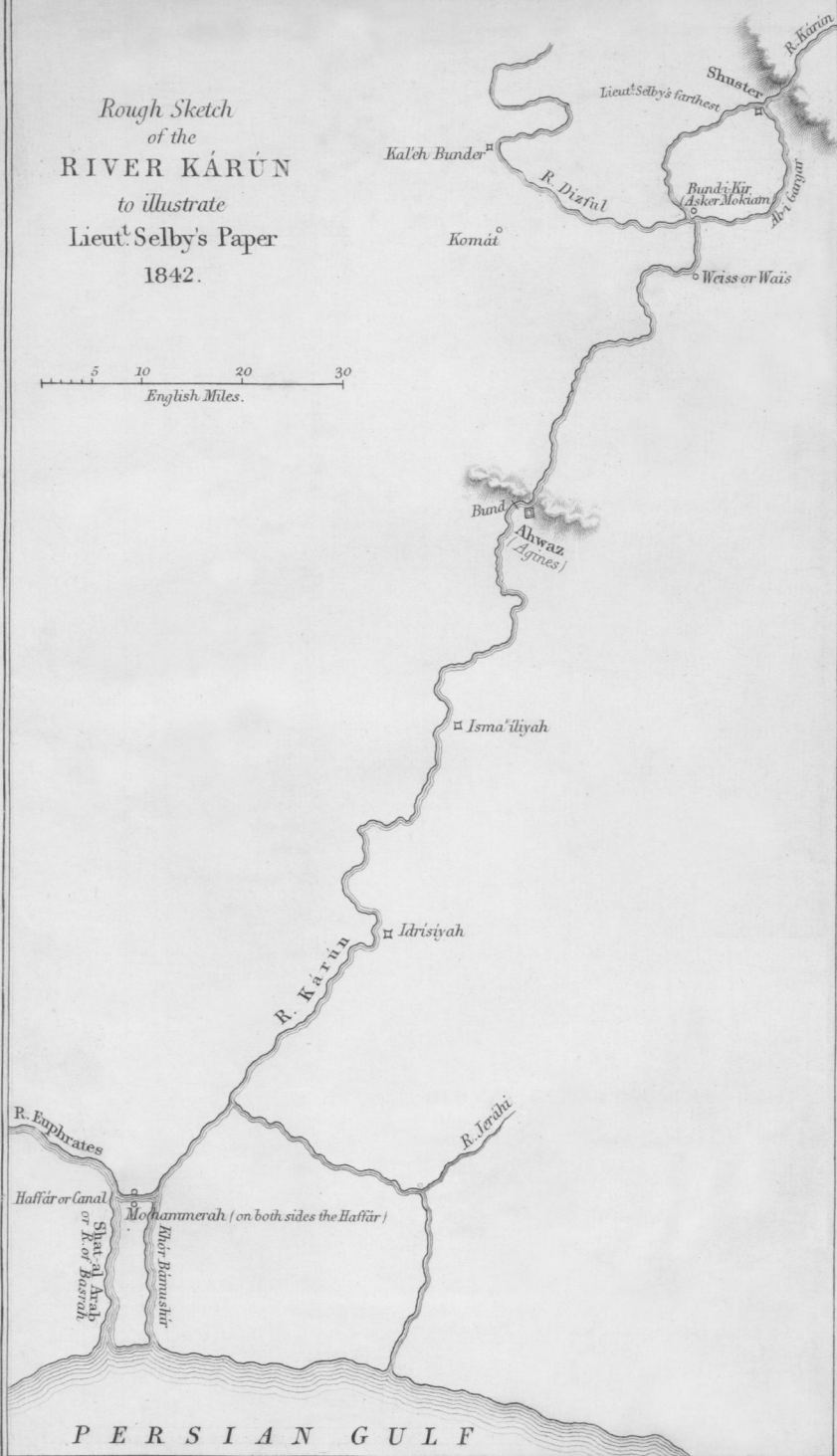
From Bund-i-Kír to Dizful the banks, with very few intermissions, are covered with wood. As, however, there are no villages on the banks until we arrive at Komát, and the Arabs who tenant the country are migratory, depôts of fuel might be cut and laid at any spot deemed most convenient; as from these people also I met with every attention and wish to assist me in everything.

If, then, I have shown that no physical difficulty presents itself in the navigation of these rivers, and that practice alone is required to perfect what I have commenced, I shall have accomplished that which I can only regret has not been attempted by some abler person than myself.

In conclusion I must observe, that should any one in after-times devote his attention to the same objects which I had in view, and find that in some description I am incorrect, or faulty in some omission, he will bear in mind that part of this river was surveyed in June, with the thermometer at 113° Fahrenheit in the shade; and that I had not one single assistant who could in any way aid me in either observations or calculations.

Rough Sketch
of the
RIVER KÁRÚN
to illustrate
Lieut^t Selby's Paper
1842.

5 10 20 30
English Miles.



P E R S I A N G U L F